

Social Innovation Inventor Competition for Innovative Design



Design for Living with Person with Dementia

CHAN Chui King, Liliane (Dr)
Ho Cheung Shuk Yuen Charitable Foundation

Outline of Presentation



- Basics of dementia
- Living with dementia: design principles on environment and daily living activity
- Examples of application

The Basics of Dementia





Paola Panizon: Look Inside Your Brain



Paola Panizon: Look Inside Your Brain



Paola Panizon: Look Inside Your Brain



Paola Panizon: Look Inside Your Brain

What is Dementia?



- An umbrella term for different brain disorders
- Impairment includes reduced ability to remember, understand, reason and communicate and affects functioning of daily activities

Causes of Dementia



- The commonest cause - Alzheimer's disease (AD)
- 2nd commonest cause - vascular dementia (VaD)
- Other causes include dementia with Lewy Bodies, brain tumour, head injury, excessive drugs and alcohol use, as well as vitamin B12 deficiency, etc.

Alzheimer's Disease (AD)



- A degenerative disorder of the brain
- The most commonnest type of dementia, makes up about 2/3 of all cases
- Development of neurofibrillary tangles and amyloid plaques
- Transmission of chemical messages through the brain cells is deranged and eventually blocked. Gradually, brain cells shrivel and die.
- Still confusion over what constitutes the common disease process of AD

Vascular Dementia (VaD)



- A group of syndromes that relate to different mechanisms in the blood supply to the brain
- Those who have had a stroke are at a higher risk for this type of dementia
- Accounts for about another 15%, and a mixed type (AD and VaD) constitutes another 10-15%

Clinical Features



- **Disorders of cognitive function**
 - memory loss is the salient feature
 - usually memory loss for recent events
 - confabulation may be present
 - impaired attention and concentration
 - disorientation
 - impaired judgment and general knowledge

Clinical Features



- **Language problem**
 - word finding difficulties initially
 - may talk nonsense or incoherent or become mute at late stage
- **Delusion and hallucination**
 - paranoid ideas
 - delusion of theft
 - other delusions and hallucinations

Clinical Features



- **Behavioural changes**
 - impaired activities of daily living (physical and functional ADL & IADL)
 - inappropriate behaviour and restlessness
 - change in personality e.g. sexual disinhibition, lacking interests
- **Mood change**
 - anxiety, irritability, depressive mood
- **Sleep and appetite disturbance**

Staging



Mild

capacity for independent living remains although work or social activities significantly impaired

Moderate

independent living hazardous
some degree of supervision necessary

Severe

continual supervision required

Prevalence of Dementia



- 1034 ≥ 70 elderly examined
- 6% for those aged ≥ 70
- Estimated to be 4% for those aged ≥ 65
- Increasing rate with ageing
aged 85 to 89 - 25.8%
- AD > VaD

(Chiu et al, 1998)

Prevalence of Dementia



- **Rate of dementia** (AD) increase with age
- **Sex:** Female had a high rate of dementia (7.1%) compared with males (4.7%) (AD)
- **Educational :** prevalence of dementia increased for those with low educational level (AD)
- **45%** of dementia subjects were living in institutions

(Chiu et al, 1998)

Risk Factors



◆ Age :

- ◆ rare before the age of 65
- ◆ about 10% over the age of 65
- ◆ more than 20% over the age of 80
- ◆ Head injury with loss of conscious in an accident
- ◆ Family history of dementia
- ◆ ? Low education

Signs & Symptoms



- **Decline in short-term memory**
 - *Forgetting recent happenings*
 - *Unusually repeating the same questions*
 - *Forgetting dates and times of appointments*
- **Decline in the ability to handle matters and problem solving**
 - *Difficulty in handling personal and financial matters independently*

Signs & Symptoms



- **Not being able to handle familiar tasks**
 - *Showing difficulties in preparing dinner*
- **Showing difficulties in identifying time and location**
 - *Forgetting the time*
 - *Losing one's way*
- **Confusion with visual images and spaces**
 - *Showing difficulties in identifying distance, colour and lighting*
 - *Misidentifying one's own image in a mirror as another person*

Signs & Symptoms



- **Communication barriers**
 - *Difficulty in self-expression*
 - *Difficulties in finding appropriate words*
- **Decline in judgmental ability**
 - *Crossing the road carelessly*
- **Misplacing materials**
 - *Misplacing things and not being able to identify the locations later*
 - *Suspecting materials were stolen after they have been lost*

Signs & Symptoms



- **Decrease in social activities**
 - *Refusing to participate in social activities*
 - *Decrease in the initiative to work*
- **Changes in emotion and personality**
 - *Frequent ups and downs in emotion*
 - *Feelings of anxiety and uncertainty*
 - *Lacking the sense of security*

Feelings and Needs



- Being lost
- Being slow
- Being blank
- Being productive
- Being autonomous
- Being comfortable and secure

(Harris & Sterin, 1999; Phinney & Chesla, 2003)

Environment & Dementia



Person-environment interaction



- Behaviour is a function of the individual's competence and the demands of the environment (Lawton & Nahemow, 1973)
- Demand too low, result in boredom, negative affect and behavior seen in sensory deprivation.
- Demand too great, result in anxious, overwhelmed or hopeless. (Kiemat, 1993)

Environment and Activities



Significant effect:

- co-existence of physical and cognitive decline
- design to support or hasten deterioration
- design to facilitate positive and failure-free life experience (more involvement, less anxiety)

(Ageing & Disability Department, NSW 2000)

Design Implications



- ❖ recognize the inevitability of decline
- ❖ minimize stress of the elder
- ❖ compensate the disabilities (e.g. not to rely on their memories of where to find belongings)
- ❖ assist daily functioning - maximize independence and enhance self confidence
- ❖ accommodate the various types of behaviours e.g. wandering
- ❖ try to keep the elder comfortable and safe
- ❖ welcome social interaction (e.g. neighbours, relatives and friends)

(Judd et al, 1998)

Design Features



- ❖ controlled stimuli, especially noise
- ❖ unobtrusive concern for safety
- ❖ clear and multiple signage / cues where possible
- ❖ use of objects rather than colour for orientation
- ❖ enhancement of visual access
- ❖ familiar, age-appropriate furniture and fittings
- ❖ opportunity to integrate past experience into daily / ordinary activities (e.g. cooking, washing)

(Judd et al, 1998)

Some Practical Tips



- ❑ Contrast between objects and the background, or between floor and wall contrast to facilitate people to notice object from surrounding environment (e.g. door, toilet bowl)
- ❑ Use bright primary color for those you want them to see (e.g. door / drawer handle)
- ❑ Use non-slip flooring
- ❑ Avoid shiny or reflective floor surface

Some Practical tips



- ❑ Lever action handle are easy to operate than door knobs
- ❑ Cupboard door is transparent or no door to facilitate search and locate object
- ❑ Round-edged furniture
- ❑ Safety in bathroom and kitchen (e.g. handrails, water temperature control, sharp items)
- ❑ Night light and toilet lighting to facilitate location of toilet at night
- ❑ Bedroom to be nearer to the toilet

Examples

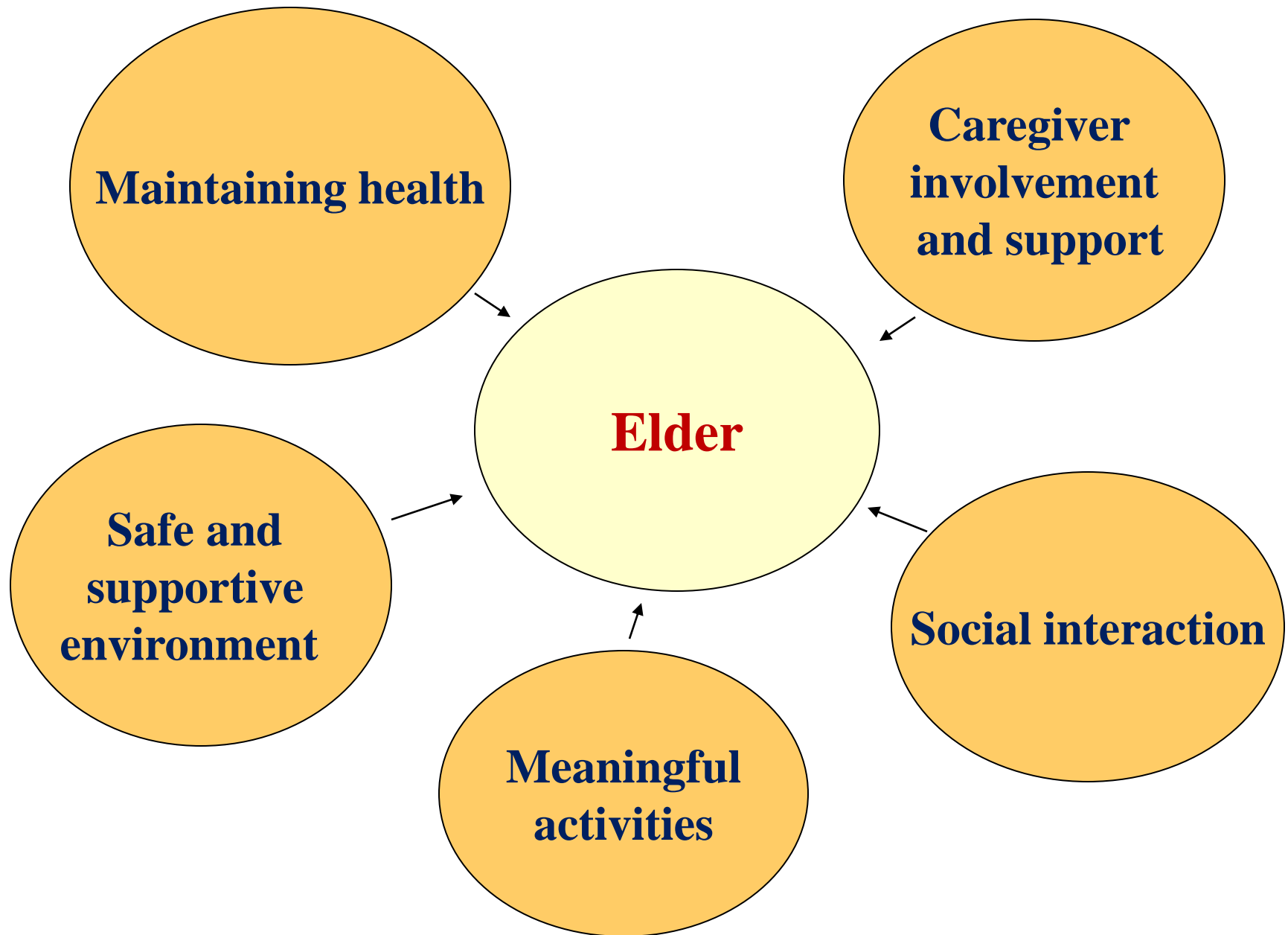


A simple formula in living with and designing for the person with dementia....





- medical model of dementia –
The person with **DEMENTIA**
- ✓ person-centred approach -
The **PERSON** with dementia



The Person-centred Approach



“If your eyesight fails, you can get some glasses, but you can’t buy a pair of glasses for your memory.”

(Dementia Voice, 2002)

Useful links



- <http://dementia.stir.ac.uk/design/design-guides>
- http://www.jccpa.org.hk/en/facts_on_dementia/hints_for_home_safety/index.php
- <http://www.hkhselderly.com/erc/en/facilities.php>

Thank you

